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The Maritime Transport of Hydrocarbons

Report by the UNCTAD secretariat*

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INTRODUCTION

(i) This report was prepared in response to requests made at the eighth session of the Committee on Shipping. 1/ It also serves to provide useful background material in connexion with the report entitled "Merchant fleet development" (TD/222 - pre-publication text distributed in English only as UNCTAD/SHIP/127) which has been prepared by the secretariat for consideration under item 14(b) of the provisional agenda of the fifth session of the United Nations Conference on Trade and Development.

(ii) The factual material in this report has been based on a study undertaken for the secretariat by Fearnley Consultants A.S., Oslo, who used in turn data produced by an affiliated company Fearnley and Egers Chartering Co. Ltd., also of Oslo. Except where otherwise stated, these two companies are the sources for data used in this report.

(iii) Lack of comprehensive statistics has necessitated using figures from several sources. Discrepancies exist between the data from different sources which in most instances cannot be reconciled. Nevertheless, the statistical sources are sufficiently consistent for the present purpose of presenting a global view of the transport of hydrocarbons.

1/ Report of the Committee on Shipping on its eighth session (TD/B/648 - TD/B/C.4/173), para. 61.

CHAPTER I

WORLD TRADE IN HYDROCARBONS

General observations

1. The term "hydrocarbons" covers four main commodity groups, as follows:

Commodity group	Tonnage carried by sea in international trades, 1976 (Million tons)
Crude oil	1,418
Oil products	260
Liquefied petroleum gas (LPG)	12
Liquefied natural gas (LNG)	12

Tons are metric tons in all statistics quoted in this document.

2. For the purpose of this study crude oil has been taken as including semi-processed feedstocks. Oil products covers eleven sub-groups, the relative importance of which is indicated by the quantities of each (in million tons) imported by OECD countries in 1976:

Sub-group	Imports
Residual fuel oil	112.9
Gas diesel oil	59.0
Naphtas	22.3
Motor gasoline	17.4
Aviation fuels	9.3
Lubricants	2.7
Bitumen	2.5
Kerosenes	1.5
White spirit + S.B.P.	0.7
Paraffin waxes	0.4
Other products	1.5

Although petroleum coke is treated as an oil product in some statistical collections it has been excluded from the commodity group for the purposes of this study, since shipments are generally made by dry cargo vessels.

3. Both LPG and LNG are shipped in compressed, liquefied, form. LPG commonly consists of propane, butane or propane/butane mixtures. LNG consists of methane and impurities, mainly ethanes.

4. The classification of countries in the study follows broadly, within the limits of the statistics, the groupings used by UNCTAD secretariat in its annual reviews of maritime transport. Where distinguished separately, the Caribbean generally includes Colombia and Venezuela; in other cases, the Caribbean area is combined with Central and South America under the heading Latin America. Data for developing countries as a whole have been divided into subtotals for oil-exporting and other developing countries.

The former comprise:

(a) Middle East: Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates;

(b) Asia: Indonesia;

(c) Africa: Algeria, Gabon, Libyan Arab Jamahiriya, Nigeria;

(d) Latin America: Ecuador, Venezuela.

Certain other developing countries also export oil in relatively insignificant quantities and are consequently treated as basically importing countries.

5. Table 1 shows the development of international seaborne trade in crude oil and oil products during the period 1966-1976, indicating a steep rise in shipments of crude oil over the period compared with a modest rise in the shipment of oil products. Oil products accounted for only 15 per cent of the total tonnage of oil shipped in 1976 compared with 24 per cent in 1966. Measured in ton-miles, the share of oil products in total oil shipments declined from 21 per cent to 8 per cent over the same period. These figures reflect a growing tendency on the part of importing countries to refine the oil which they consume.

Table 1

World seaborne oil trade, 1966-1976

	Crude oil	Oil products	Crude oil	Oil products
	Million tons		Billion ton-miles	
1966	607	195	2629	700
1967	672	193	3400	730
1968	768	207	4197	750
1969	871	209	4853	760
1970	995	245	5597	890
1971	1068	247	6554	900
1972	1184	261	7719	930
1973	1365	274	9206	1010
1974	1360	264	9660	960
1975	1259	233	8882	845
1976	1418	260	10229	950

6. It is not possible to illustrate trends in the transport of the other main commodity groups, LPG and LNG, in the same manner because the development of their maritime transport has been too recent. The world-wide pattern of seaborne movements is discussed separately for each of the four commodity groups.

Crude oil

7. Table 2 shows the world pattern of seaborne movements in 1976 in tonnage terms; while table 3 shows the percentage distribution of this trade between the four main groupings of countries distinguished in table 2.

8. The Middle East is the dominant exporting area, accounting for two-thirds of the tonnage exported in 1976, while Western Europe, the United States of America and Japan are the dominant importers, accounting for 80 per cent of the total tonnage imported.

9. Table 4 indicates that in terms of ton-miles developing countries accounted in 1976 for 98 per cent of the tanker demand for exports; socialist countries accounted for about 2 per cent in that year and developed market-economy countries for a negligible fraction. On the import side it may be seen that in 1976 Western Europe, the United States and Japan together accounted for 65 per cent of the demand; other developed market-economy countries accounted for 4 per cent, socialist countries for 2 per cent and developing countries for 9 per cent in the same year.

Oil products

10. Table 5 shows the general world pattern of seaborne movements of oil products in 1976.

11. The table makes clear the local character of the oil products trade, with the Caribbean as by far the largest supplier to the USA, Eastern Europe as the major supplier to Western Europe and South-East Asia as the largest supplier to Japan. Middle East/Gulf exports of oil products, which accounted for less than one-fifth of the total trade volume, had a dispersed pattern of destinations. The average shipment distance in international oil products trade in 1976 was 3,650 nautical miles, whereas the average distance for crude oil shipments was nearly twice as great, being 7,200 nautical miles.

12. Lack of statistical data has made it impossible to produce a more detailed matrix for trade in oil products, similar to that produced for crude oil, but further data on exports (without destination) and imports (without origin) are given in table 6 (which, however, is not strictly comparable with table 5 since the figures include some land movements).

Table 2

Seaborne trade in crude oil, 1976

(Million tons)

From \ To	Developed market-economy countries					Socialist countries			Oil-exporting developing countries					Other developing countries				Total
	Total	Europe	North America	Japan	Other	Total	Eastern Europe	Asia	Total	Middle East	Indonesia	Africa	Latin America	Total	Asia	Africa	Latin America	
Developed market-economy countries	24.9	21.1	3.5	0.1	0.2				0.1			0.1						25.0
Of which:																		
Europe	24.6	21.1	3.5						0.1			0.1						24.7
North America																		
Japan																		
Other	0.3			0.1	0.2													0.3
Socialist countries	31.4	25.0	0.3	6.1		0.3	0.3							9.2	1.9	0.9	6.4	40.9
Of which:																		
Eastern Europe	25.4	25.0	0.3	0.1										8.4	1.1	0.9	6.4	33.8
Asia	6.0			6.0		0.3	0.3							0.8	0.8			7.1
Oil-exporting developing countries	1114.8	573.6	297.2	212.7	31.3	18.3	18.3		1.0				1.0	204.3	98.5	14.8	91.0	1338.4
Of which:																		
Middle East	790.1	448.4	130.2	181.8	29.7	14.0	14.0							157.2	95.9	12.5	48.8	961.3
Indonesia	54.5	0.3	26.5	27.6	0.1									9.3	2.3		7.0	63.8
Africa	226.1	117.0	105.6	3.0	0.5	4.3	4.3							24.0	0.3	2.3	21.4	254.4
Latin America	44.1	7.9	34.9	0.3	1.0				1.0				1.0	13.8			13.8	58.9
Other developing countries	50.9	18.8	18.5	10.8	2.8	0.8	0.8							7.9	1.4		6.5	59.6
Of which:																		
Asia	22.0	9.1	1.0	10.5	1.4									1.9	1.3		0.6	23.9
Africa	15.1	9.2	5.1	0.3	0.5	0.8	0.8							1.0	0.1		0.9	16.9
Latin America	13.8	0.5	12.4		0.9									5.0			5.0	18.8
Total	1122.0	638.5	319.5	229.7	34.3	19.4	19.4		1.1			0.1	1.0	221.4	101.8	15.7	103.9	1463.9

Table 3

Percentage distribution of seaborne trade in crude oil (in terms of tonnage), 1976

From \ To	Developed market-economy countries	Socialist countries of Eastern Europe	Socialist countries of Asia	Oil-exporting developing countries	Other developing countries	Total
Developed market-economy countries	1.7	-	-	-	-	1.7
Socialist countries of Eastern Europe	1.7	-	-	-	0.5	2.2
Socialist countries of Asia	0.4	-	-	-	0.1	0.5
Oil-exporting developing countries	76.2	1.2	-	0.1	14.0	91.5
Other developing countries	3.5	0.1	-	-	0.5	4.1
Total	83.5	1.3	-	0.1	15.1	100.0

Note: Most of the trade among the socialist countries of Eastern Europe is treated as overland transport.

Table 4

Percentage distribution of seaborne trade in crude oil (in terms of ton-miles)

	1966	1971	1976
Exporting Areas			
Middle East/Gulf	72	81	83
Near East	6	2	1/2
Caribbean	6	3	1/2
North Africa	8	5	4
West Africa	)	5	5
South-East Asia	) 8	2	4
Others	)	2	2
Importing Areas			
Western Europe	52	65	52
USA	7	4	20
Japan	20	18	13
Others	21	13	15

Table 5

Major seaborne trades in oil products, 1976
(Million tons)

From \ To	Western Europe	USA	Japan	Others	Total
Middle East/Gulf	4.1	2.9	11.1	32.8	50.9
Caribbean	10.0	80.1	0.3	11.0	101.4
South-East Asia	0.3	1.5	15.1	4.0	20.9
Eastern Europe	32.1	0.9	0.5	7.2	40.7
Others	6.3	19.9	3.5	16.4	46.1
Total	52.8	105.3	30.5	71.4	260.0

Table 6

International a/ trade in oil products
(Million tons)

Region or country	Exports			Imports		
	1966	1971	1976	1966	1971	1976
US	9.5	12.3	11.9	71.8	115.5	103.3
Canada	1.8	2.8	12.0	8.5	6.0	2.0
Caribbean	94.8	113.0	114.5	3.3	3.8	9.9
Other Western Hemisphere	2.8	1.0		6.0	3.8	
Western Europe	10.5	15.3	14.4	57.0	34.8	54.1
Middle East	56.0	64.2	49.8	1.0	-	3.9
North Africa	3.5	2.3	3.4	2.5	4.0	3.7
West Africa	5.5	8.5	1.2	3.5	1.0	2.0
East and South Africa	1.0	0.5	1.4	11.3	6.5	2.1
South Asia			-			5.2
South-East Asia	5.3	9.8	17.5	7.0	15.0	24.6
Japan	1.8	1.0	0.1	16.8	41.5	28.7
Australasia	0.8	0.8	2.7	2.0	3.8	5.5
Eastern Europe-China	24.5	27.5	43.0	0.3	0.8	1.0
Destination not known b/	-	-	-	26.8	15.5	25.9
Total	217.8	252.0	271.9	217.8	252.0	271.9

Source: British Petroleum Co. Ltd.: "Statistical review of the world oil industry" for each of the years 1966, 1971 and 1976.

a/ Trade within the separate regions listed is excluded.

b/ Includes increased quantities in transit, transit losses, minor movements not otherwise shown, military use etc.

13. Table 7, which gives the percentage distribution in terms of ton-miles of international trade in oil products in 1976, is based on the same source as table 6 and is subject to the same definitions.

Table 7

Percentage distribution of international trade in oil products (in terms of ton-miles), 1976

Exporting Areas		Importing Areas	
Middle East/Gulf	34	Western Europe	30
Caribbean	24	USA	27
Eastern Europe	13	Japan	15
South-East Asia	8	Others	28
Others	21		
	100		100

14. The table reveals that about 70 per cent of the product tanker demand originated in developing countries; 13 per cent of this demand originated in socialist countries and 17 per cent in developed market-economy countries. On the import side, it may be seen that Western Europe, USA and Japan together accounted for 72 per cent of product tanker demand; other developed market-economy countries accounted for about 4 per cent, developing countries for 22 per cent and socialist countries for a negligible fraction.

Table 8
Seaborne trade in LPG, 1976

(Million tons)

From \ To	Developed market-economy countries					Socialist countries			Oil-exporting developing countries				Other developing countries					Total
	Total	Europe	North America	Japan	Other	Total	Eastern Europe	Asia	Total	Middle East	Indonesia	Africa	Latin America	Total	Asia	Africa	Latin America	
Developed market-economy countries	2.62	1.16	0.07	1.39		0.03	0.03		0.17	0.11		0.06		0.37	0.02	0.12	0.23	3.19
Of which:																		
Europe	1.18	1.16	0.02			0.03	0.03		0.17	0.11		0.06		0.15		0.12	0.03	1.53
North America	0.25			0.25										0.19			0.19	0.44
Japan														x	x			x
Other	0.19		0.05	1.14										0.03	0.02		0.01	1.22
Socialist countries	0.30	0.30				0.02	0.02							0.10		0.05	0.05	0.42
Of which:																		
Eastern Europe	0.30	0.30				0.02	0.02							0.10		0.05	0.05	0.42
Asia																		
Oil-exporting developing countries	6.81	0.91	0.93	4.97		0.04	0.03	0.01	0.02				0.02	1.13	0.25	0.14	0.74	8.00
Of which:																		
Middle East	5.76	0.56	0.23	4.97		0.04	0.03	0.01	0.02				0.02	0.45	0.25	0.06	0.14	6.27
Indonesia	x		x															x
Africa	0.51	0.31	0.20											0.10		0.08	0.02	0.61
Latin America	0.54	0.04	0.50	x										0.58			0.58	1.12
Other developing countries	0.01	0.01	x											0.23	0.10	0.01	0.12	0.24
Of which:																		
Asia	x		x											0.10	0.10			0.10
Africa														0.01		0.01		0.01
Latin America	0.01	0.01	x											0.12			0.12	0.13
Total	9.94	2.38	1.00	6.36		0.09	0.08	0.01	0.19	0.11		0.06	0.02	1.83	0.37	0.32	1.14	11.85

x denotes less than 0.005

Liquefied Petroleum Gas (LPG)

15. Table 8 shows the world pattern of seaborne movements of LPG in 1976, while table 9 shows the percentage distribution of this trade between the four main groupings of countries.

Table 9

Percentage distribution of seaborne trade in LPG
(in terms of tonnage), 1976

From \ To	Developed market-economy countries	Socialist countries of Eastern Europe	Socialist countries of Asia	Oil-exporting developing countries	Other developing countries	Total
Developed market-economy countries	22.1	0.2	-	1.4	3.1	26.9
Socialist countries of Eastern Europe	2.5	0.2	-	-	0.9	3.6
Socialist countries of Asia	-	-	-	-	-	-
Oil-exporting developing countries	57.5	0.2	0.1	0.2	9.5	67.5
Other developing countries	0.1	-	-	-	1.9	2.0
Total	82.2	0.7	0.1	1.6	15.4	100.0

Liquefied Natural Gas (LNG)

16. The number of countries involved in the LNG seaborne trades is very limited. Full details for 1976 are given in matrix form in table 10, which shows the trade volume in both million cubic metres and million tons.

Table 10

Seaborne trade in LNG, 1976

From \ To	France	Italy	Spain a/	UK	USA	Japan	Total
	Million cubic metres						
USA						2.23	2.23
Algeria	4.90		0.29	1.59	0.48		7.26
Libyan Arab Jamahiriya		4.36	2.37				6.73
Brunei						11.28	11.28
Total	4.90	4.36	2.66	1.59	0.48	13.51	27.50
	Million tons						
USA						1.00	1.00
Algeria	2.21		0.14	0.72	0.22		3.29
Libyan Arab Jamahiriya		1.96	1.12				3.08
Brunei						5.08	5.08
Total	2.21	1.96	1.26	0.72	0.22	6.08	12.45

Source: Based on Oil Statistics 1976, OECD.

a/ Imports into Spain for which the country of origin is not specified are distributed in the same proportions as in 1975 (according to World Energy Supplies 1971-1975, United Nations publication, Sales No. E.77.XVII.4).

CHAPTER II

THE MARKETING OF HYDROCARBONS

General observations

17. World trade in crude oil, oil products and LPG is handled by five main types of organizations: the transnational oil companies, national oil-exporting companies, national oil-importing companies, traders and brokers.

18. The transnational companies are dominated by the so-called Seven Majors (B.P., Exxon, Gulf, Mobil, Shell, Standard Oil of California and Texaco), which together handle about 52 per cent of world crude oil production outside the socialist countries. Another 22 North American and European companies 2/ handle a further 12 per cent of these supplies. Until the end of the previous decade the transnational oil companies dominated the chain from producer to ultimate consumer but, with the nationalization of oil production at an accelerated pace during the early part of the present decade, most of the oil-producing countries have established national companies to control oil production. Table 11 illustrates the declining share in production of the transnational oil companies during the current decade.

Table 11

Estimated gross share of OPEC crude oil production by category of oil company

Year	OPEC production OPEC member countries	Gross share of production					
		Government or national oil company		Other oil companies excluding Seven Majors		Seven Majors	
	Million tons	Million tons	Per cent	Million tons	Per cent	Million tons	Per cent
1971	1 [illegible]	49	4	223	18	992	78
1972	1,353	112	8	205	15	1,036	77
1973	1,547	652	42	150	10	743	48
1974	1,527	913	60	136	9	485	31
1975	1,358	827	61	127	9	403	30
1976	1,528	1,142	75	97	6	289	19

Source: OPEC Annual Statistical Bulletin, 1976.

2/ Amerada Hess Corporation, Apco Oil Corporation, Ashland Oil Inc., Atlantic Richfield Company, Champlin Petroleum Company, Cities Service Company, Clark Oil and Refining Corporation, Compagnie Française des Pétroles, Continental Oil Company, Getty Oil Company, The Louisiana Land and Exploration Company, Marathon Oil Company, Murphy Oil Corporation, Petrofina Société Anonyme, Phillips Petroleum Company, Skelly Oil Company, Standard Oil Company (Indiana), The Standard Oil Company (Ohio), Sun Company, Inc., The Superior Oil Company, Tosco Corporation, Union Oil Company of California.

19. To date the national oil-exporting companies have not made any significant move into distribution activities and the overwhelming proportion of crude oil and oil products continue to be exported on an f.o.b. basis. Many of the national oil-exporting companies maintain close connexions with their former concession holders through production participation agreements or long-term purchase agreements (three to five years) which stipulate minimum and maximum volumes. In fact, it is estimated that 70-75 per cent of world crude oil exports are made available either through production participation agreements or through such long-term purchase agreements. The balance of production is sold on short-term contracts (normally limited to one year and involving the major distributors) or through spot sales (limited to one or a few specific liftings).

20. In addition to purchasing crude oil for their own needs, the Seven Majors also act as traders, purchasing crude for re-sale to other oil companies. In 1976 the Seven Majors controlled supplies of 1,263 million tons of crude, whereas their own refining capacity amounted to only 956 million tons; by contrast the next 22 large companies possessed refining capacity amounting to 379 million tons, but purchased supplies of only 254 million tons direct from the oil-producing countries.

21. The national oil-importing companies are small compared with the transnational companies. Few of them are directly involved in shipping as shipowners; they may, however, charter vessels to lift oil purchased on an f.o.b. basis. The Japanese refinery and distribution companies constitute one of the major groups in this category.

22. Traders buy and sell on their own account (unlike brokers) and most of their operations appear to be concentrated in the products trades, although the nature of their business varies a good deal. Some traders have supply contracts with major industrial consumers, while others operate on a more speculative basis. They serve the international market by solving temporary imbalances in supply and demand. Some traders charter tankers and a few operate their own tonnage. The volumes they handle vary with the market situation. Their share increases when the supply/demand situation tightens, hence it is relatively low at the present time. As noted, the major oil companies also act as traders. The international LPG trade is dominated by a few traders, some of whom operate their own tonnage or charter vessels.

23. Brokers as the name implies, match seller and buyer and do not operate on their own account. They normally operate on the spot market and fulfil the function of levelling out geographical imbalances.

Crude oil

24. The lack of penetration into downstream activities by the national oil-exporting companies and the limited roles of the other categories of organizations result, as far as crude oil is concerned, in the continuing domination of marketing by the transnational oil companies, notwithstanding the nationalization measures which went into effect in the early part of the present decade. Table 12 shows the supplies controlled by the Seven Majors and the 22 large North American and European companies according to area of origin.

Table 12

Crude oil production and supply to oil companies, and oil consumption, for selected areas, 1976

Area	Crude oil production	Production supply to oil companies a/				Oil consumption
		Seven majors		Other North American and European oil companies b/		
	Million tons	Million tons	Per cent of area production	Million tons	Per cent of area production	Million tons
Western Europe	45	18	40	11	24	706
USA	461	175	38	101	22	822
Canada	77	30	39	22	29	86
Latin America	233	76	32	4	2	186
Middle East	1,100	750	68	70	7	73
Africa	285	100	35	41	14	54
Australia and Far East	124	65	52	5	4	414
Total	2,325	1,214	52	254	11	2,341

Notes:

a/ Based on production (participation) of companies and affiliates and on supply contracts. Excludes the national oil companies of the socialist countries of Eastern Europe and Asia.

b/ The 22 companies listed in paragraph 18, footnote 2/.

Oil products

25. The market for oil products is complicated by the fact that these products are sold by refineries located in non-oil-producing as well as oil producing countries. There are three main categories of refineries: resource refineries (large refineries situated close to oil wells, specially built to refine the local crude); balance refineries (large refineries located closer to markets and built to process crudes from different sources); and market refineries (refineries of varying sizes specially built to serve local markets). The main balance refineries are located in Rotterdam, Italy, Singapore and the Caribbean.

26. Of the 260 million tons of oil products shipped by sea in 1976, about 100 million tons were shipped from balance refineries, mainly from the Caribbean to United States; from North Europe to South Europe and vice versa; and from Singapore to the Far East and Japan. Most of the remaining 160 million tons were shipped from resource refineries.

27. The 29 major transnational oil companies own no less than 60 per cent of world refining capacity outside the socialist countries and virtually all of the main balance refineries. Thus in handling sales from balance refineries these companies are in a position to control the production/marketing/distribution chain for oil products much as they once controlled the production, marketing and distribution of crude oil. Even

in handling products from resource refineries the same companies are in a dominant position since, as noted above, they buy on f.o.b. terms.

28. In many trades the dominant position of the transnational oil companies is reinforced by their ownership of market refineries and their control of distribution systems in importing countries. In such situations the same transnational company is thus both seller and buyer; and international maritime transport is for it an internal company operation. The only importing countries which are in a position to break this chain of control are clearly those which establish national companies to control importing and/or domestic oil distribution.

Liquefied Petroleum Gas (LPG)

29. The marketing situation in the LPG trade is somewhat different. Historically the trade in LPG was based on gas produced by refineries in the main importing countries; most sales were concluded between developed countries on a spot basis and most of the transport took place by land. Such maritime transport as is involved in this traditional trade is dominated by traders and independent owners.

30. The export of LPG by oil-producing countries is a recent development in the last 5 - 10 years. This trade has involved the exporting countries in heavy investments in liquefaction-plants which could be justified only through long-term sales contracts rather than spot sales, and the projects have been developed with considerable involvement on the part of the Governments of the exporting countries. Most sales are made to transnational gas/oil companies and to traders. Table 13 shows the structure of the LPG marketing arrangements in individual trades in 1976.

Table 13 - Structure of LPG marketing in 1976

Exporting country	Category of body/bodies responsible for marketing	Categories of purchasers	Main markets
Abu Dhabi	Government company	Industrial consumers	Japan
Algeria	Government company	Traders and gas companies	USA Mediterranean
Australia	Concession holders	Oil and gas companies	Japan
Indonesia	Concession holders	Traders	USA
Iran	Former concession holders	Industrial consumers	Japan
Kuwait	Government company	Traders and industrial consumers	Japan
Libyan Arab Jamahiriya	Government company/ concession holders	Traders and gas companies	Spain USA
Qatar	Government company	Traders and gas companies	USA Spain
Saudi Arabia	Former concession holders	Oil and gas companies	Japan
USSR	Government company	Traders and industrial consumers	Europe
Venezuela	Government company/ former concession holders	Traders	USA

31. Although most LPG sales are currently being made on an f.o.b. basis the government exporting agencies are showing an interest in downstream activities and some are reported to be considering selling on a c.i.f. basis and participating in terminal operations and marketing in the importing countries. At the present time the Japanese appear to be the only importers to operate tankers for their LPG imports: in other cases, maritime transport is handled by independent tanker owners or occasionally by the exporting countries (which charter their vessels to importers in the case of f.o.b. sales).

Liquefied Natural Gas (LNG)

32. In the LNG trades contracts are complex and differ from project to project. However, a general trend seems to be that the Governments in the exporting countries participate in the ownership of the LNG plant as well as in a trading company that purchases LNG f.o.b. and delivers the cargo c.i.f. at the receiving terminal. The Governments sometimes also own part of the tonnage on charter to the trading company but they rarely participate in the ownership of the regasification plant at the receiving end. LNG ships are owned by governmental agencies, independent owners, oil/gas companies or financial institutions and are generally employed on 20 - 25-year charters or on contracts of affreightment to joint venture companies owned by the exporting country and oil/gas companies.

CHAPTER III

THE WORLD TANKER FLEET

33. The four main categories of vessels used in the international maritime transport of hydrocarbons are set out in table 14 below which shows the number and capacity of vessels in each category in the existing fleets at 1 January 1977. 3/

34. Combined carriers have been included with tankers of the same size-category on account of their potential oil-carrying capacity. Vessels in the 10,000 - 60,000 dwt category are used primarily in the oil products trades while those of over 60,000 dwt are used basically for crude oil, although in practice a certain amount of crude may be transported by the smaller tankers and some of the larger tankers may be used for products. Certain of the vessels included in the LNG fleet are also capable of carrying LPG, and the LPG fleet includes some vessels which are also capable of carrying chemicals, solvents, or oils. However, for statistical purposes such minor variations are ignored.

35. The table sets out details of the world fleet according to countries of registration, though the ownership of vessels as registered in the open-registry countries is of course purely nominal. In the present context the open-registry countries comprise the Bahamas, Bermuda, Cyprus, Liberia, Panama, Singapore and Somalia, together with the Netherlands Antilles where the register is 'open' only to the Netherlands.

36. Another UNCTAD secretariat report supplementing the report on merchant fleet development 4/ demonstrates that the beneficial ownership of open-registry vessels is almost entirely traceable to shipowners of developed market-economy countries. Table 15 shows the open-registry tanker tonnage beneficially owned, for each country in which it exceeds 1 million tons. Combining the information given in tables 14 and 15, it is apparent that the ownership of the world fleet is heavily concentrated in the hands of the developed market-economy countries, which own no less than 91 per cent of the dwt tonnage of tankers and combined carriers. The percentages of the fleet owned by developing countries (whether oil-producing or not) and socialist countries are minimal.

37. In addition to beneficially owning tankers registered under flags of convenience, the transnational oil companies also own substantial tanker tonnage registered under the flags of countries with normal shipping registers. In particular, United States oil companies own tankers registered in the United Kingdom and in a number of other European countries. 5/ In fact to gain a full insight into the ownership of the world tanker fleet it is necessary to consider not only data according to countries of registration and, in open-registry countries, according to beneficial ownership but also information showing how ownership is distributed among various categories of oil companies and independent shipowners.

3/ Details of the world fleet are set out in a report of the UNCTAD secretariat entitled "Review of Maritime Transport 1977" (TD/B/C.4/178).

4/ "Beneficial ownership of open-registry fleets": report by the UNCTAD secretariat (TD/222/Supp.1 - pre-publication text distributed in English only as UNCTAD/SHIP/126).

5/ For details see: Foreign flag merchant ships owned by U.S. parent companies, U.S. Department of Commerce, Maritime Administration, May 1968.

Table 14

World capacity for maritime transport of hydrocarbons, 1 January 1977

Countries of registration	Tankers and combined carriers 10,000-60,000 dwt		Tankers and combined carriers over 60,000 dwt		LPG vessels over 2,000 cbm		LNG vessels over 2,000 cbm	
	No.	'000 dwt; in brackets, percentage	No.	'000 dwt; in brackets, percentage	No.	'000 cbm; in brackets, percentage	No.	'000 cbm; in brackets, percentage
Open-registry countries	522	17,656 (31.3)	729	116,352 (37.4)	37	1,161 (36.1)	8	802 (36.4)
Developed market-economy countries	903	27,208 (48.2)	1,050	176,151 (56.7)	121	1,958 (60.9)	27	1,234 (56.1)
Of which:								
Europe	634	18,872 (33.4)	792	134,177 (43.2)	98	1,144 (35.6)	27	1,234 (56.1)
North America	198	6,149 (10.9)	43	4,565 (1.5)	2	34 (1.1)		
Japan	56	1,764 (3.1)	211	37,138 (11.9)	21	780 (24.2)		
Others	15	423 (0.8)	4	271 (0.1)				
Socialist countries	254	6,324 (11.2)	36	3,491 (1.1)	5	40 (1.2)		
Of which:								
Eastern Europe	226	5,632 (10.0)	25	2,647 (0.8)	5	40 (1.2)		
Asia	28	692 (1.2)	11	844 (0.3)				
Oil-exporting developing countries	49	1,557 (2.8)	40	6,868 (2.2)	1	6 (0.2)	2	165 (7.5)
Of which:								
Middle East	20	606 (1.1)	27	5,031 (1.6)				
Indonesia	4	63 (0.1)						
Africa	8	297 (0.5)	13	1,837 (0.6)	1	6 (0.2)	2	165 (7.5)
Latin America	17	589 (1.1)						
Other developing countries	152	3,691 (6.5)	63	8,039 (2.6)	8	50 (1.6)		
Of which:								
Asia	35	973 (1.7)	43	5,360 (1.7)				
Africa	10	262 (0.5)	1	87 (.)				
Latin America	107	2,451 (4.3)	19	2,592 (0.9)	8	50 (1.6)		
World total	1,880	56,436(100.0)	1,918	310,901(100.0)	172	3,215(100.0)	37	2,201(100.0)

Source for LPG and LNG fleets: H. Clarkson and Company Limited, London - 'Liquefied Gas Carrier Register, 1977'.

Table 15

Beneficial ownership of Tankers in open-registry fleets, 1976

Country or territory of beneficial ownership	Liberia		Panama		Singapore		Cyprus		Bermuda		Hong Kong		Bahamas		Total	
	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt
USA	307	46,761	78	5,573	1	6	-	-	4	394	-	-	-	-	390	52,734
Greece	135	23,919	16	884	4	284	15	265	4	316	-	-	-	-	277	25,390
Hong Kong	96	15,354	10	2,464	-	-	-	-	-	-	-	-	-	-	115	17,828
Japan	31	3,956	15	541	49	4,553	-	-	-	-	-	-	-	-	96	9,050
Israel	12	1,594	4	235	-	-	-	-	-	-	-	-	-	-	16	1,829
Italy	8	1,466	5	105	-	-	1	6	1	81	-	-	-	-	15	1,658
Germany, Fed. Rep. of	6	1,354	2	3	5	170	-	-	-	-	-	-	-	-	13	1,527
Canada	-	-	-	-	-	-	-	-	16	1,138	-	-	1	30	17	1,168
United Kingdom	13	1,160	-	-	-	-	-	-	1	3	-	-	-	-	14	1,154
Subtotal a/	711	93,570	148	9,805	59	5,013	16	284	26	1,932	-	-	1	30	985	110,432
Total	816	100,123	167	10,739	95	5,761	24	283	38	3,077	2	33	2	77	1,154	129,132

Source: Based on a report prepared for the UNCTAD secretariat by Messrs. [illegible] and P. Lededere (London) Ltd.

a/ All countries with open-registry tanker fleets exceeding 2 million tons dwt.

38. Table 16 shows that at the end of 1977 the oil companies owned 40 per cent of the world oil tanker tonnage and that independent shipowners owned the remaining 60 per cent.

Table 16

Ownership of oil tankers (end 1977)

(Million dwt)

	Tankers 10,000-60,000 dwt	Tankers over 60,000 dwt	Total
Seven Majors	9.3	61.8	71.1
Other oil companies	15.3	45.1	60.4
Independent owners	25.3	175.1	200.4
Total	49.9	282.0	331.9

39. A more detailed analysis reveals that "Other oil companies" owned more tonnage than the Seven Majors in the tanker size category 60,000 - 175,000 dwt - a total of 22.6 million dwt compared with 7.5 million dwt. In the case of vessels above 175,000 dwt, however, the Seven Majors were dominant with 54.3 million dwt compared with 22.5 million dwt owned by "Other oil companies".

40. Table 16 does not fully reveal the degree of control exerted over the world oil tanker fleet by the oil companies since, in addition to their own fleets, they control substantial fleets hired on long-term charters. Table 17 analyses the total tonnage operated by the oil companies at the end of 1977 into vessels which were owned, time-chartered and voyage-chartered. These transport arrangements largely follow the pattern of marketing arrangements, since the oil companies cover their long-term purchase commitments with their own or long-term chartered tonnage and spot purchases with voyage charters concluded on the spot market.

Table 17

Oil companies' transport capacity mix (end 1977)

	Owned tonnage		Time charter		Voyage charter		Total	
	Million dwt	Per cent	Million dwt	Per cent	Million dwt	Per cent	Million dwt	Per cent
Seven Majors	71.1	52	49.2	36	16.4	12	136.7	100
Other oil companies	60.4	38	41.3	26	57.2	36	158.9	100
All oil companies	131.5	45	90.5	30	73.6	25	295.6	100

Note: Tonnage owned by an oil company and chartered to another oil company is included only as 'owned tonnage' to avoid double counting.

41. The table indicates that the oil companies control about 222 million dwt (i.e. the owned and time-chartered tonnage), which amounts to no less than 74 per cent of the active world fleet of oil tankers (deducting from the total shown in table 16 the 31 million dwt that were laid up, as noted below). It will also be noted that the Seven Majors are more deeply involved as tanker owners and operators than the other oil companies.

42. The pattern of ownership of gas tankers is different from that of oil tankers. Table 18 shows the percentage of such vessels owned by different categories of owners. It is not possible to separate ownership by Governments and by oil/gas companies in view of the high level of government participation in the companies handling these trades. The percentages for tankers on order, also included in the table, indicate the increasing participation by oil/gas companies and governments. Finally, the table includes percentages of the existing fleet and vessels on order, taken together. This third set of percentages provides a useful indication of forthcoming changes in the distribution of the ownership of gas tankers.

Table 18

Ownership of existing fleet and gas tankers on order, 1 January 1977

(Per cent of world total)

	Oil gas companies and governments	Gas traders	Independents	Total
LPG tankers:				
Existing fleet	6	9	85	100
On order	30	4	66	100
Fleet and orders	17	7	76	100
LNG tankers:				
Existing fleet	31	-	69	100
On order	77	-	23	100
Fleet and orders	64	-	36	100

43. It is estimated that around 80 million dwt was surplus to world requirements for the oil trades at the end of 1977, amounting to an overcapacity of about 30 per cent. The over-supply of tankers took the form of 31 million dwt laid up, the equivalent of 40 million dwt tied up in slow steaming and 4 million dwt tied up in abnormal congestion. To these must be added the over-supply of combined carriers (50 per cent of which may be assumed to represent tanker tonnage), consisting of 6 million dwt laid up and the equivalent of 4 million dwt tied up in slow steaming and congestion. A survey made at the end of March 1978 indicated that the major oil companies had 7 per cent of their tanker fleets laid up; the other oil companies, 10 per cent; and the independent owners, 15 per cent. 6/

44. The wastage of world resources involved in the building of excess tanker capacity is undoubtedly connected with the expansion of the open-registry fleets, which has been taking place at a more rapid rate than that of any other sector of the world fleet. 7/ At the recent session of the Ad Hoc Intergovernmental Working Group on the

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6/ H.P. Drewry: The tanker fleets of the international oil companies, London 1978.

7/ See Review of Maritime Transport, 1977, op.cit.

Economic Consequences of the Existence or Lack of a Genuine Link between Vessel and Flag of Registry claims were made to the effect that the open-registry fleets have been operating without effective government control or regulation. 8/ The validity of these claims has since been confirmed by the findings of the UNCTAD secretariat report on beneficial ownership of open-registry fleets. 9/

8/ Report of the Ad Hoc Intergovernmental Working Group on the Economic Consequences of the Existence or Lack of a Genuine Link between Vessel and Flag of Registry (TD/B/C.4/177).

9/ Op.cit.

CHAPTER IV

TANKER FREIGHT RATES AND OPERATING COSTS

45. Freight rates for oil transport are not normally quoted directly in dollars per ton of cargo or dollars per dwt capacity per month (as in the dry cargo trades) but by reference to a "Worldscale" (W) level which corresponds to specific voyage rates per cargo ton expressed in US dollars. Worldscale is an international freight reference system which is used to simplify both the process of quoting freight rates and the comparison of the net return per day (to an owner) of alternative fixtures. The essence of the system is that a given Worldscale rate should yield the same return per day regardless of the trade route. Worldscale consists primarily of a set of reference rates for alternative voyages, combined with a scale expressing actual freight rates as a percentage of the reference rates.

46. The basic reference rate is Worldscale 100, which relates to a standard tanker of 19,500 dwt and in principle gives a net return of US$ 1,800 a day on its operations, regardless of the voyage undertaken. Since different voyages involve different voyage costs,10/ any given Worldscale rate, e.g. W 85, corresponds to different sums in US dollars per cargo ton according to the voyage. The current Worldscale schedule contains approximately 50,000 voyage rates and covers about 1,100 ports. Each of the rates is calculated on the basis of a laden voyage to the port(s) of destination and a ballast voyage back to the port(s) of loading. Since the voyage costs vary from time to time the Worldscale rates are revised twice a year. Market rates are all quoted by reference to W 100. Thus if the reference rate (W 100) for lifting an oil cargo from port A to port B is $10 per cargo ton, then W 110 is 10 per cent higher or $11 per cargo ton and W 85 is 15 per cent lower or $8.50 per cargo ton.

47. In view of the significance of economies of scale in oil transport, large tankers can operate much more economically than small tankers. As a result, market rates generally differ for tankers of different size categories. 11/ During the first four months of 1978, the spot market rates quoted for different sized tankers were as follows:

50,000 tons dwt :	W 56 to W 89
150,000 tons dwt :	W 25 to W 36
250,000 tons dwt :	W 17 to W 24

48. It is therefore essential to consider tanker rates in conjunction with tanker sizes. While in principle large tankers are more economical, their use may be limited by the cargo volume available for lifting, by draft limitations or limitations in the port facilities. While it is customary to compile indices for rates on specific routes, it should be noted that the market rates which prevail are determined basically by the size of the tankers used on the different routes (taking into account the size limitations which are inherent in particular routes).

10/ Voyage costs, as distinct from daily operating costs, consist of agents' commission, port and canal dues, loading/discharging expenses, dispatch, other voyage expenses, bunkers and cargo insurance.

11/ For the Worldscale rate indices for different classes and size categories of tankers in recent years see: "Review of Maritime Transport, 1977", op.cit., table 24.

49. The profitability of tanker operation at the market rates prevailing at any particular point of time depends upon such factors as the capital cost of the tanker (which will be very different, for example, for a tanker purchased new at a period of peak building prices and one bought secondhand when the market was low) and the crew costs (which are a significant element in daily operating costs). Independent tanker owners of expensive flag vessels (i.e. those with high labour costs) claim that they cannot operate profitably at current depressed market rates. It is said, for instance, that a shipowner operating a 250,000 ton tanker under a "medium expensive flag" would need a rate of W 17 to cover his voyage costs; a rate of W 31 to cover his voyage costs plus daily operating costs; a rate of W 42 to cover his total costs (i.e. including capital costs as well) if the vessel was bought secondhand in 1976; and a rate of W 67 to cover his total costs if the vessel was bought new in 1973 when prices were at their peak. However the profitability of independent tanker operations cannot be determined by comparing rates and costs at one particular point of time. Rates fluctuate and profits earned in boom periods must be set against losses incurred in slack periods. A rate of W 24 may appear low for a 250,000 ton tanker which needs a break-even rate of W 42 but it must be noted that as recently as the calendar year 1973 the relevant tanker rate averaged W 171. It should also be noted that the tanker owners themselves contributed to the present recession in the tanker market and to the high capital costs arising from high building prices by their own activities in over-ordering.

50. The oil companies have their own reference system for internal use known as AFRA (Average Freight Rate Assessment), the purpose of which is to determine the transportation element in the cost of the oil which they ship and hence the average cost of oil per ton. Since such a large percentage of the maritime transport of oil consists of internal operations of the oil companies, AFRA rates are of relevance to the ultimate consumers of oil.

51. AFRA rates are published monthly and represent the weighted average for long-term fixtures, single voyage fixtures and owned tonnage. AFRA rates are calculated for different categories of vessel, however, the formulas and weights used by the oil companies are not published. Table 19 shows AFRA rates since 1976.

Table 19

AFRA (Average Freight Rate Assessment)
according to category of vessel

(Monthly averages in Worldscale)

Vessel category	1976	1977	1978 January-May
General purpose 16,500 - 25,000 dwt	132.7	151.7	154.3
Medium size 25,000 - 45,000 dwt	117.6	114.7	110.9
Large 1 45,000 - 80,000 dwt	77.1	74.7	69.1
Large 2 80,000 - 160,000 dwt	57.1	54.8	51.6
VLCC/ULCC 160,000 - 320,000 dwt	50.3	47.9	44.5

52. On the basis of AFRA rates (which, it will be noted, are considerably above the level of spot rates given in paragraph 47, during 1978), the total cost of international seaborne transport of oil for 1976 is calculated to be about US$ 10 billion for crude oil and about $2 billion for oil products.

CHAPTER V

COMBINED CARRIERS

53. Combined carrier operations are of particular interest to certain developing countries, especially those which export ore and import oil or vice-versa. There are two main types of conventional combined carriers:

(a) Ore/oil carriers;
(b) Ore/bulk/oil carriers (OBOs), normally referred to as bulk/oil carriers.

Ore/oil carriers are basically intended for shipment of ores, being similar to ore carriers but built with side tanks and cargo holds for oil. A bulk/oil carrier may be described as a bulk carrier, basically tailored for coal or grain shipments but adapted for the carriage of oil and strengthened to carry cargoes with a high specific gravity. Combined carriers became popular in the 1960's and orders reached a peak in 1970.

54. The development of the world fleet of conventional combined carriers is shown in table 20.

Table 20

World combined carrier fleet, selected years

Year (at 1 January)	Ore/oil carriers		Bulk/oil carriers		Total	
	No.	'000 dwt	No.	'000 dwt	No.	'000 dwt
1962	66	1702	1	28	67	1730
1967	92	3291	17	1109	109	4400
1972	147	11193	104	9909	251	21102
1977	214	25715	200	21093	414	46808

55. Combined carriers represent a link of growing significance between the oil and the dry bulk markets for maritime transport, as illustrated by the fleet tonnages at 1 January in selected years shown in table 21.

Table 21

World bulk fleet, selected years

(Million dwt)

Year (at 1 January)	1967	1972	1977
Oil tankers	95.6	171.1	320.5
Combined carriers	4.4	21.1	46.8
Bulk carriers	30.9	70.4	116.6
Total bulk fleet	130.9	262.6	483.9

56. Table 22 shows the combined carrier tonnage as a percentage of the tonnage of the various fleet sectors at 1 January in the selected years. From the 1977 data it may be seen that while combined carriers constitute only eight per cent of the world merchant fleet, these vessels offer substantial potential competition for bulk carriers and, to a lesser extent, for tankers.

Table 22

Combined carriers as a percentage of the various fleet sectors

Fleet sector	1967	1972	1977
Oil tankers and combined carriers	4.4	11.0	12.7
Bulk carriers and combined carriers	12.5	23.3	28.6
World bulk fleet	3.4	8.0	9.7
World merchant fleet	2.0	5.9	7.9

57. While conventional combined carriers are designed to serve both the oil and the dry cargo markets, from a technological point of view they are sub-optimal to operate for either of these markets alone. On the other hand, when their flexibility to carry both cargoes is utilized, combined carriers may be more economical than either other type of carrier due to the reduction of ballast distance; this is especially true when they are used to transport oil and dry bulk cargoes on opposite voyage legs. The possibilities for such operations may be limited, however, if the flow of cargoes in the two directions is unbalanced. On the back haul a large number of vessels may be competing for a low volume of cargo. This can result in such a low level of freight rates on the back haul that it becomes more economical to operate the vessel in one-way employment.

58. Some owners build combined carriers so that they can switch from one market to the other when large differences develop in the freight rates for oil and dry bulk cargoes. However, when both these markets are depressed simultaneously the proportion of charterless combined carriers laid up may be higher than that of tankers and bulk carriers. At the end of 1977 the proportions laid up were as follows for the various categories of bulk vessels: combined carriers, 12½ per cent; tankers, 9 per cent; and bulk carriers, 2½ per cent.

59. Table 23 shows the penetration of combined carriers into the oil and dry bulk markets:

Table 23

World bulk shipments by category of vessel

(Million cargo tons)

	1966	1971	1976
Oil shipments			
Tankers	791	1218	1557
Combined carriers	11	97	121
Dry bulk shipments			
Tankers	13	1	5
Combined carriers	27	17	123
Bulk carriers	180	441	607

In 1976 combined carriers performed 1660 billion ton-miles, of which 878 billion ton-miles were in oil and 782 billion ton-miles in dry bulk trading. In terms of ton-miles, combined carriers accounted for 7.9 per cent of the total oil shipments and 20.9 per cent of the total dry cargo shipments in that year. Combined carriers are utilized in relatively long trade routes, especially in the case of dry bulk shipments. Shipments by combined carriers in 1977 are estimated at about 252 million tons, of which oil accounted for 140 million tons or 56 per cent and dry bulk cargo for 102 million tons or 44 per cent. About four-fifths of the vessels have been wholly or partly engaged in the maritime transport of hydrocarbons.

60. Table 24 gives a more detailed analysis of the various commodities shipped by combined carriers.

Table 24

Shipments by combined carriers in selected years

(Million cargo tons)

	1966	1971	1976
Oil	10.8	96.7	120.8
Iron ore	24.4	13.3	93.3
Coal	0.9	3.1	13.2
Grain	0.2	0.1	11.6
Other commodities	1.6	1.0	4.7
Total	37.9	114.2	243.6

61. Table 25 gives a regional analysis of oil and dry bulk shipments by combined carriers in 1976.

Table 25

Combined carrier shipments by region, 1976

(Million tons)

From \ To	Europe	North America	Latin America	Japan	Other destinations	Total
Oil shipments:						
Middle East	38.3	9.7	10.2	7.0	6.0	71.2
Africa	8.7	19.0	3.1	0.5	-	31.3
Caribbean	0.7	8.0	0.5	-	-	9.2
South-East Asia	0.3	4.5	0.3	0.4	0.2	5.7
Other origins	0.8	2.2	0.2	-	0.2	3.4
Sub-total	48.8	43.4	14.3	7.9	6.4	120.8
Dry bulk shipments:						
Latin America	17.4	1.9	0.2	24.1	0.3	43.9
North America	19.7	1.2	2.2	9.9	1.2	34.2
Australia	8.9	0.1	-	17.6	0.1	26.7
Africa	5.8	0.2	-	3.4	-	9.4
Europe	4.8	0.3	0.2	0.1	0.2	5.6
Asia	1.9	-	0.1	0.7	0.3	3.0
Sub-total	58.5	3.7	2.7	55.8	2.1	122.8
Total	107.3	47.1	17.0	63.7	8.5	243.6

62. Developing countries exported 97 per cent of the oil and 46 per cent of the dry bulk cargo tonnages and they imported 14 per cent of the oil and 4 per cent of the dry bulk cargo tonnages shown in table 25. Table 26 shows the involvement of developing countries on a cargo turnover basis (exports plus imports).

Table 26

Cargo turnover of combined carrier services in developed and developing countries, 1976

(Million tons; in brackets, percentage)

	Exports		Imports		Total cargo turnover
	Oil	Dry cargo	Oil	Dry cargo	
Developed countries					
Europe	3.4	5.6	48.8	58.5	116.3 (24)
North America	-	34.2	43.4	3.7	81.3 (17)
Japan	-	-	7.9	55.8	63.7 (13)
Others	-	26.7	3.4	0.1	30.2 (6)
Developing countries					
Asia	76.9	3.0	2.5	1.9	84.3 (17)
Africa	31.3	9.4	0.5	0.1	41.3 (9)
Latin America	9.2	43.9	14.3	2.7	70.1 (14)
Total	120.8	122.8	120.8	122.8	487.2 (100)

63. Although developing countries accounted for 40 per cent of the cargo turnover in 1976, they owned less than 6 per cent of the world fleet of combined carriers. Only six developing countries owned combined carriers: India owned 13 vessels, Brazil seven, Argentina two and three countries - Chile, Malaysia and the Republic of Korea - one each. None of the oil producing countries owned combined carriers. Table 27 illustrates the degree to which combined carriers registered in developing countries were employed in trade on their home country and in cross trading.

Table 27

Employment pattern in 1976 of combined carriers registered in developing countries

(Number of loaded voyages)

Registry	No/type of vessels	Trade on Home Country			Cross Trading	
		Oil import	Dry bulk export	Dry bulk import	Oil	Dry bulk
India	7 bulk/oil	0	0	3	8	16
	6 ore/oil	12	8	0	5	13
Brazil	7 ore/oil	14	21	0	7	1
Others	6 ore/oil	5	5	12	8	0
Total	26	31	34	15	28	30

Note: Six vessels were delivered during the year, one was laid up and one engaged only in domestic trading.

CHAPTER VI

PARTICIPATION OF DEVELOPING COUNTRIES IN THE MARITIME TRANSPORT OF HYDROCARBONS

64. For the purpose of assessing the involvement of different groupings of countries as trading nations in the world hydrocarbon trade it is convenient to use percentages of cargo turnover in tons as the basis, this giving equal weight to exporters and importers as trading partners.

65. Table 28 sets out estimated percentages of cargo turnover for each of four groupings of countries, and for each of the four main commodity groups. The table compares each of these percentages with the corresponding percentages for fleet ownership. The latter figures show that maritime transport of hydrocarbons is almost totally dominated by transnational corporations and other shipowners of the developed market-economy countries.

66. The low participation of oil-exporting developing countries in fleet ownership and operation is largely attributable to their main importers' practice of buying on f.o.b. terms but that does not make the situation any more equitable. By monopolizing transport operations instead of sharing them with their trading partners, developed countries must inevitably accentuate the divergence between the rates of development of developed and developing countries. Bulk items often constitute the main source of export income for a developing country, yet the activity of exporting such items provides in itself little opportunity for development. Expansion into oil tanker operations offers many developing countries a logical opportunity for expanding their roles in the world economy, since it constitutes a direct downstream activity. If developing countries are to become more than mere passive suppliers of commodities based on natural resources for the use of developed countries - in short, if they are to develop - there must be some change in marketing arrangements so that transport operations come to be shared more equitably.

67. The complex nature of international oil movements would make it difficult to evolve any single principle to govern rights in relation to transport. Certain cargoes move on a regular basis and offer constant employment for tankers plying on shuttle services between trading partner countries. Such cargoes could be transported, wholly or partly, by vessels flying the flags of the trading partner countries. Other cargoes are shipped irregularly and must necessarily be shipped on tankers which engage in general world-wide trading. However, there would appear to be no valid reason why the transport of both kinds of cargoes should be dominated by oil companies and other shipowners of developed market-economy countries, especially as these countries are becoming increasingly incapable of providing the necessary shipboard labour at economic rates. They maintain their domination only by the device of registering tankers under flags of convenience, thereby obtaining all the advantages of using labour from the world's poorer countries without giving an equitable share in the benefits of shipping operations to the countries which supply the flag, to the countries which supply the labour or to the countries which supply the cargo.

68. Action is clearly needed to increase the participation of developing countries in the maritime transport of hydrocarbons. It is beyond the scope of the present report, however, to consider the measures which might be taken, with this object in

Table 28

Percentage distribution of cargo turnover and fleet ownership in maritime transport of hydrocarbons among country groupings, 1976

Country groupings	Crude oil		Oil products		LPG		LNG	
	Cargo turnover	Fleet ownership	Cargo turnover	Fleet ownership	Cargo turnover	Fleet ownership	Cargo turnover	Fleet ownership
Developed market-economy countries	42.6	94.1	45.0	79.5	54.6	97.0	54.0	92.5
Socialist countries	2.1	1.1	9.5	11.2	2.2	1.2	-	-
Oil-exporting developing countries	45.7	2.2	21.0	2.8	34.5	0.2	25.6	7.5
Of which:								
Middle East	32.8	1.6	10.2	1.1	26.9	-	-	-
Indonesia	2.2	-	1.5	0.1	-	-	-	-
Africa	8.7	0.6	1.6	0.5	2.8	0.2	25.6	7.5
Latin America	2.0	-	7.7	1.1	4.8	-	-	-
Other developing countries	9.6	2.6	24.8	6.5	8.7	1.6	20.4	-
Of which:								
Asia	4.3	1.7	9.6	1.7	2.0	-	20.4	-
Africa	1.1	-	1.6	0.5	1.4	-	-	-
Latin America	4.2	0.9	13.6	4.3	5.3	1.6	-	-
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Totals on which percentages are based	2027.8 million tons	310.9 million dwt	520 million tons	56.4 million dwt	23.70 million tons	3.215 million cbm	24.90 million tons	2.201 million cbm

Notes: (a) For the purposes of this table the crude oil fleet is assumed to consist of vessels of over 60,000 dwt and the products fleet of vessels of 10,000 - 60,000 dwt.
(b) Vessels on open registry are included in the fleets of the developed market-economy countries.
(c) Cargo turnover data, which are based on sources quoted elsewhere in this report, are partly estimated.
(d) Fleet ownership data relate to the position at 1 January 1977.

view, since the report of the UNCTAD secretariat entitled "Merchant fleet development" and its statistical annexes 12/ deal with the whole question of developing countries' participation in shipping and cover specifically participation in liquid and dry bulk transport. This report discusses the issues, while Supp.2 gives details of the liquid and dry bulk cargo movements in which developing countries are involved.

12/ TD/222 with the annexes in TD/222/Supp.2. Pre-publication texts of these documents have been distributed in English only as UNCTAD/SHIP/127 and UNCTAD/SHIP/128, respectively.